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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Frans Leenhouts

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LIU & LIU

444 S. FLOWER STREET, SUITE 1750

LOS ANGELES, CA 90071

EXAMINER

NGUYEN, LAUREN

ART UNIT

PAPER NUMBER

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NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Office Action Summary	Application No. 10/540,104	Applicant(s) LEENHOUTS ET AL.	
	Examiner LAUREN NGUYEN	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/04/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 04/04/2008 have been fully considered but they are not persuasive.
2. The applicant argues (see pages 7-8) regarding **claim 1** that it would be unreasonable for the examiner to simply modify the retardation value of a particular layer in Akiyama and randomly apply the retardation value of the Onishi LC layer to the Akiyama device. This is not persuasive. Akiyama discloses an LCD device comprising polarizers, a reflective film and a light scattering layer. Since those elements are well-known in the art for their used in enhancing the display characteristics of the device, it would not pose any problem to combine Akiyama's device with the LC layer as taught by Onishi. In addition, Onishi (in at least column 12, lines 60-65 and column 13, lines 35-45) clearly teaches the retardation of said liquid crystal layer being in the range of 500-750 nm (300-650 nm) in order to achieve a brighter display. Onishi also states that if the retardation is less than 300 nm, the cell shows a dark display.
3. The applicant argues (see page 9) regarding **claims 1, 11, 20** that the claimed combination requires more than just optimizing the workable ranges, that the claimed combination requires creative and inventive considerations of the optical interactions of the combination of optical elements. This is not persuasive. The claimed combination is an aggregation of unrelated components. None of the components as claimed is connected to the others in a patentably distinct way. In fact, as discussed above, the components are extremely known elements in the art. In addition, neither Akiyama nor Onishi requires the present of a compensation film.

4. The applicant argues (see page 9) regarding **claim 1** that the examiner did not point to another retardation range as a reference to conclude the effect of a bright display and only considered the optical effect of the LC layer in isolation from the other recited optical layers. The examiner respectfully disagrees. **Onishi et al.** (in at least column 12, lines 60-65 and column 13, lines 35-45) teaches the retardation of said liquid crystal layer being in the range of 500-750 nm (300-650 nm). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the retardation of the liquid crystal layer of the retardation of said liquid crystal layer being in the range of 500-750 nm with the teaching of **Onishi et al.** because such modification would achieve a brighter display. In addition, neither Akiyama nor Onishi requires the present of a compensation film. The optical elements as disclosed by Akiyama are well-known in the art for the use in enhancing the display characteristics of the device, it would not pose problem combining with Akiyama's device with the LC layer as taught by Onishi.

5. The claim language therefore does not patentably distinguish over the applied reference[s], and the previous rejections are maintained.

Information Disclosure Statement

6. The information disclosure statement (IDS) submitted was filed after the mailing date of the instant application on 04/04/2008. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claim 1-3, 8-13, and 18-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Akiyama et al. (US 6,577,360)** in view of **Onishi et al. (US 5,814,378)**.

9. With respect to **claim 1**, **Akiyama et al.** (figures 3 and 9) discloses a normally white super-twist nematic liquid crystal display device for multiplex operation, comprising:

- a liquid crystal cell (11) essentially comprising a liquid crystal layer, being sandwiched between a front and a rear substrate (1 and 2, figure 3);
- an at least partly reflective film (15), arranged in proximity to said rear substrate; and
- a front optical stack (12 and 17), arranged on a viewer's side of the front substrate, the stack comprising one or more optical films, wherein the front optical stack consists essentially of a polarizer (12) and an optical light scattering film (17).

Akiyama et al. discloses the limitations as shown in the rejection of **claim 1** above.

However, **Akiyama et al.** fails to teach the retardation of said liquid crystal layer being in the range of 500-750 nm. **Onishi et al.** (in at least column 12, lines 60-65 and column 13, lines 35-45) teaches the retardation of said liquid crystal layer being in the range of 500-750 nm (300-650 nm). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the retardation of the liquid crystal layer of the retardation of said liquid crystal layer being in the range of 500-750 nm with the teaching of **Onishi et al.** because such modification would achieve a brighter display. In addition, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. In the

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case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 2131.05.

10. With respect to **claim 2, Onishi et al.** (in at least column 12, lines 60-65 and column 13, lines 35-45) discloses the retardation of said liquid crystal layer being in the range of 500 to less than 700 nm (300-650 nm).

11. With respect to **claim 3, Akiyama et al.** (figures 3 and 9) discloses said at least partly reflective film is a reflective film (15) enabling reflective operation of the display device.

12. With respect to **claim 8, Akiyama et al.** (figures 3 and 9) discloses said at least partly reflective film (15) is arranged in said rear optical stack (14, 15, and 16), essentially adjacent to said rear substrate.

13. With respect to **claim 9, Akiyama et al.** (figures 3 and 9) discloses the front optical stack includes only the polarizer (12) and the optical light scattering film (17, figure 9).

14. With respect to **claim 10, Akiyama et al.** (figures 3 and 9) discloses the front optical stack does not include a compensation film (figure 9).

15. With respect to **claim 11, Akiyama et al.** (figures 3 and 9) discloses a normally white super-twist nematic liquid crystal display device for multiplex operation, comprising:

- a first substrate and a second substrate (1 and 2, figure 3);
- a liquid crystal layer (3) disposed between the first and second substrate;
- an at least partly reflective film (15) supported by the second substrate; and
- a first optical stack (12 and 17) supported by the first substrate, comprising a polarizer (12) and an optical light scattering film (17), without a compensation film.

Akiyama et al. discloses the limitations as shown in the rejection of **claim 11** above. However, **Akiyama et al.** fails to teach the retardation of said liquid crystal layer being in the range of 500-750 nm. **Onishi et al.** (in at least column 12, lines 60-65 and column 13, lines 35-45) teaches the retardation of said liquid crystal layer being in the range of 500-750 nm (300-650 nm). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the retardation of the liquid crystal layer of the retardation of said liquid crystal layer being in the range of 500-750 nm with the teaching of **Onishi et al.** because such modification would achieve a brighter display. In addition, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 2131.05.

16. With respect to **claim 12**, **Onishi et al.** (in at least column 12, lines 60-65 and column 13, lines 35-45) discloses the retardation of said liquid crystal layer being in the range of 500 to less than 700 nm (300-650 nm).

17. With respect to **claim 13**, **Akiyama et al.** (figures 3 and 9) discloses said at least partly reflective film is a reflective film (15) enabling reflective operation of the display device.

18. With respect to **claim 18**, **Akiyama et al.** (figures 3 and 9) discloses said at least partly reflective film (15) is supported by the second substrate (2) on a side facing away from the first substrate (1).

19. With respect to **claim 19**, as applied to **claim 1** above, **Akiyama et al.** (figures 3 and 9) discloses the front optical stack includes only the polarizer (12) and the optical light scattering film (17, figure 9).

20. **Claims 4-5, 7, 14-15, 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Akiyama et al.** in view of **Onishi et al.**, further in view of **Kubo et al. (US 6,124,919)**.

21. With respect to **claim 4**, **Akiyama et al. in view of Onishi et al.** discloses the limitations as shown in the rejection of **claim 1** above. **Akiyama et al. in view of Onishi et al.** does not disclose said at least partly reflective film is a transflective film enabling transflective operation of the display device. **Kubo et al.** (figures 1, 3 and 7(a)-7(b); in at least column 10, lines 43-51) discloses said at least partly reflective film (2) is a transflective film enabling transflective operation of the display device. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light reflecting film of **Akiyama et al. in view of Onishi et al.** with the transflective film of **Kubo et al.** because such modification would enhance the brightness and obtain the image display having high contrast.

22. With respect to **claim 5**, as applied to **claim 4** above, **Akiyama et al.** (figures 3 and 9) discloses a rear optical stack, arranged on a back side of the liquid crystal layer, the stack comprising one or more optical films (14-16).

23. With respect to **claim 7**, **Kubo et al.** (as shown in figures 1, 3 and 7(a)-7(b)) discloses said at least partly reflective film (2) is arranged as an in-cell internal reflector between said front and rear substrate (1 and 2).

24. With respect to **claim 14**, **Akiyama et al. in view of Onishi et al.** discloses the limitations as shown in the rejection of **claim 11** above. **Akiyama et al. in view of Onishi et al.** does not

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disclose said at least partly reflective film comprises a transflective film enabling transflective operation of the display device. **Kubo et al.** (figures 1, 3 and 7(a)-7(b); in at least column 10, lines 43-51) discloses said at least partly reflective film (2) comprises a transflective film enabling transflective operation of the display device. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light reflecting film of **Akiyama et al. in view of Onishi et al.** with the transflective film of **Kubo et al.** because such modification would enhance the brightness and obtain the image display having high contrast.

25. With respect to **claim 15, Akiyama et al.** (figures 3 and 9) discloses a second optical stack supported by the second substrate, comprising one or more optical films (14-16).

26. With respect to **claim 17, Kubo et al.** (as shown in figures 1, 3 and 7(a)-7(b)) discloses said at least partly reflective film (2) is supported by the second substrate on a side facing the first substrate (1 and 2).

27. **Claims 6, 16, and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Akiyama et al. in view of Onishi et al. and Kubo et al.**, further in view of **Maruyama et al. (US 2002/0093612)**.

28. With respect to **claim 6**, as applied to **claim 5** above, **Akiyama et al.** (figures 3 and 9) **in view of Onishi et al.** discloses said rear optical stack comprises a rear polarizer (14). **Akiyama et al. in view of Onishi et al.** does not disclose a compensation film being arranged between the rear polarizer and the liquid crystal cell. **Maruyama et al.** (figure 12; in at least paragraph 0064) teaches a compensation film (44) being arranged between the rear polarizer and the liquid crystal cell (43 and 42b). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rear optical stack of **Akiyama et al. in view of Onishi et al.**

with the compensation film of **Maruyama et al.** because such modification would suppress the bright block image and enhance the contrast of the display.

29. With respect to **claim 16, Akiyama et al.** (figures 3 and 9) **in view of Onishi et al.**

discloses said rear optical stack comprises a rear polarizer (14). **Akiyama et al. in view of Onishi et al.** does not disclose a compensation film. **Maruyama et al.** (figure 12; in at least paragraph 0064) teaches a compensation film (44). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rear optical stack of **Akiyama et al. in view of Onishi et al.** with the compensation film of **Maruyama et al.** because such modification would suppress the bright block image and enhance the contrast of the display.

30. With respect to **claim 20, Akiyama et al.** (figures 3 and 9) discloses a normally white super-twist nematic liquid crystal display device for multiplex operation, comprising:

- a first substrate and a second substrate (1 and 2, figure 3);
- a liquid crystal layer (3) disposed between the first and second substrate;
- an at least partly reflective film (15) supported by the second substrate on a side facing away from the first substrate; and
- a first optical stack (12 and 17) supported by the first substrate, comprising a polarizer (12) and an optical light scattering film (17), without a compensation film.

However, **Akiyama et al.** fails to teach the retardation of said liquid crystal layer being in the range of 500-750 nm and a single compensation film supported by the second substrate. **Onishi et al.** (in at least column 12, lines 60-65 and column 13, lines 35-45) teaches the retardation of said liquid crystal layer being in the range of 500-750 nm (300-650 nm). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the retardation of

the liquid crystal layer of the retardation of said liquid crystal layer being in the range of 500-750 nm with the teaching of **Onishi et al.** because such modification would achieve a brighter display. In addition, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 2131.05.

Maruyama et al. (figure 12; in at least paragraph 0064) teaches a single compensation film (44) supported by the second substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rear optical stack of **Akiyama et al.** in view of **Onishi et al.** with the compensation film of **Maruyama et al.** because such modification would suppress the bright block image and enhance the contrast of the display.

Conclusion

31. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

32. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

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calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lauren Nguyen whose telephone number is (571) 270-1428. The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. N./

Examiner, Art Unit 2871

/Andrew Schechter/

Primary Examiner, Art Unit 2871